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A Big Data-Informed Math Classroom Space Built on the Wisdom Cloud for Postsecondary Vocational Education

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ABSTRACT

Math has been getting a lot of attention from higher education policymakers since it has been recognised as a public core curriculum subject in the system of vocational universities. However, difficulties persist in higher education due to the dispersed nature of mathematics teaching materials and the difficulty of integrating data. The proliferation of intelligent technology, spurred driven by big data (DT) and smart clouds, has assisted academic institutions in implementing programmes that teach informatization and data integration arithmetic teachers in higher vocational education have challenges including more material to cover in less contact hours. difficult, advanced occupational training because to rising student numbers and deteriorating math instruction, to create a data-driven, mathematically-savvy cloud platform via the use of big data's rich mathematical resources instructing.

Introduction

The context. Higher vocational education has grown significantly in recent years as a result of policy shifts on a national level. While this development is encouraging, the increasing school enrolment has led to the dilemma of a reduction in quality of pupils as a whole. And then there are the benefits of modern maths is an essential public fundamental topic, and its texts are conceptually strong. • is makes it di*f* cult to comprehend. Even with the progress of the national as a result of changes brought about by education reform, higher vocational institutions have adapted their

curricula and enhanced the quality of their teaching. material of many majors for the goal of enhancing the providing lessons at a more advanced mathematical level At the same time, they have also strengthened the qualifications for the quality of instruction and the breadth of instructors' knowledge in better schools for the trades, which boosts the difficulty of teaching mathematics. In Moreover, smart cloud technology has also started to be utilised in every facet of our life, yet technology has also brought the potential for creative new approaches to teaching and learning in the field of education. There is growing support for the use of online and one instruction. number of top managers in the education More specifically, the MOOC platform's online courses include recognised as a serious academic by professors. , thus, mathematics for higher An increasing number of scientific methods are being included into vocational technology to contribute to the growth of the internet as a whole classes.

The purpose of this article is to provide a framework for the development of a knowledge cloud platform for mathematics instruction and education at post

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secondary vocational institutions. intends to address the present mathematical issues teaching in two-year and four-year vocational schools. And yet, Changes have been made to the way arithmetic is taught in the classroom. and the standard of education has increased in both quality and depth. By Setting up a Mathematical Learning Environment on a instructional approach for smart cloud platforms, which integrates The dream of combining online and offline math education finally comes true, and resolving the seeming paradox of having to squeeze more information into less time; Timely communication between students and teachers is facilitated by the online intelligent cloud platform and by using the intelligent classroom cloud computing environment.

The Construction Method of Mathematics Teaching Environment Based on Big Data of Higher Vocational Education Wisdom Cloud Platform

Intelligent DT-Powered Cloud Platform. Smart technology \s that combines DT and smart cloud has already been applied\so many aspects of society, such as our smart city, which is formed from a digital city, and grasps the development The spatial and temporal trajectory of urban development. Figure 1 depicts potential uses for smart cities. There is far more potential for smart city applications than just the examples shown. included in Figure 1, but also covers additional such as smart parks municipalities, and the rise of "smart" technology based on DT technology and smart cloud platforms. DT is a database of enormous proportions, access to whose whole contents would be impractical. standard software manages, processes, and sorts everything. tools in an acceptable period. *therefore, it is required to intelligence the data information in DT [7]. *e enormous volume of Because DT Storage has such a large capacity storage server, we are able to Keeping data in a large repository, where it can be accessed in a timely manner, is the first step in a massive will offer the data information intelligence and categorise and incorporate this facts into the construction of your knowledge. school yard is built on a new construction under the smart city. As the first online playground, it has improved upon to become the cutting-edge "smart campus" Massive Open Online Courses; students may study on the MOOC platform; logging of study time and progress is done automatically in the background. study effect, which are based on the creation of DT and creation of a smart cloud platform can monitor multiple data in place and time, which will be intellectualized by big data and then intelligently examined and merged.

$$Q_1 = \sum_2 b^2 * R_b * \varphi, \qquad (1)$$

Q1 is the data analysis that can be immediately retrieved on the smart cloud platform, and it is shown after processing. To keep track of the data in this batch, R needs to know the batch number. It's the rate at which information is sent for each data set. *e This is a batch-produced data element matrix (1), developed using DT.

$$\varphi = \begin{Bmatrix} b_1 & b_3 & \cdots & b_{(2n-1)} \\ b_2 & b_4 & \cdots & b_{2n} \\ b_3 & b_6 & \cdots & b_{3n} \\ b_1 & b_2 & \cdots & b_n \end{Bmatrix}. \qquad (2)$$

Apache Storm is an example of a low-latency stream processing framework that is widely used in the stream

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processing paradigm. It manages a consistent data streams at a timeframe close to real-time It's possible for processing times to be in the sub-second range [9]. It is supposedly some kind of the fast-processing mode and which The basic concept of computation goes as follows:

$$Q_2 = \frac{\sum_s P * A}{2} * \phi. \quad (3)$$

$$\phi = \begin{Bmatrix} A_1 & P \\ P & A_N \end{Bmatrix}. \quad (4)$$

$$Q = \sum_s^b R_b * A^P * \eta. \quad (5)$$

*e form of η is as follows:

$$\eta = \begin{Bmatrix} A_1 & b_{2n} & b_4 & P \\ P & b_1 & A_1 & b_3 \\ b_n & P & \ldots & A_N \\ b_2 & b_{(2n-1)} & A_N & P \end{Bmatrix}. \quad (6)$$

DT's three data processing modes can do a thorough time and space analysis, and then show the results in a three-dimensional space, so that viewers can understand the data's evolution in a way that's both clear and comprehensible. Figure 2 is a flowchart depicting the extraction process. By doing so, the user may get a tailored table for statistical analysis. So as to evaluate the remaining archived information, and provide a conclusive conclusion. Instructional designers may use DT to synchronic the Student records stored in the intelligent cloud provide teachers with the tools to assess the academic progress of learner may use these statistics to inform their own instructional strategy for enhancing their own teaching skills and techniques.

Mathematics Teaching Environment of Higher Vocational \education. There are still numerous issues in the field of higher vocational education, particularly in the classroom setting. [11] *e college and university teaching universities always have to be updated, particularly in th instruction in complex mathematical concepts. Most colleges and

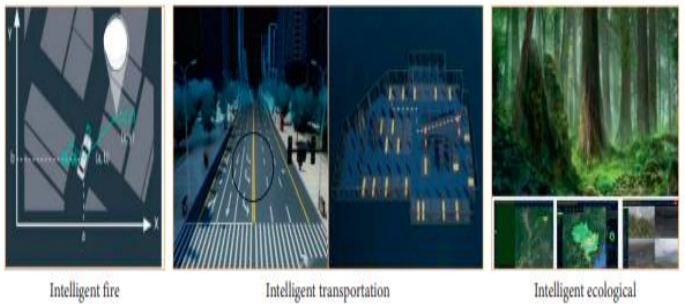

Figure 1: Smart city application scenarios.

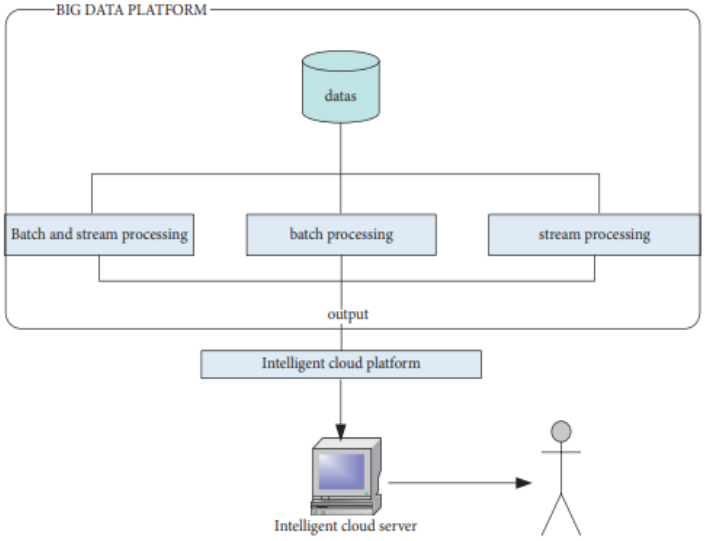

Figure 2: Data extraction flow chart.

Since colleges encourage independent study, the number of pre-planned classes is certain to be less than

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it was in high school. However, considering how challenging advanced mathematics may be, this may not be a bad thing. course, plus the fact that it has fewer courses and greater substance makes it makes it harder for college students to pursue additional degrees calculations intended to increase difficulty. While universities and Universities now provide additional study time for students. Taking the students' perspectives into account has not been a priority for any of them. the desire to learn more about and engage with the field of advanced mathematics *e Due to time constraints, teachers often struggle to adequately explain the Nowhere near enough detail is given in introductory calculus texts. As a result, our pupils have not been able to accomplish any pedagogical fog, and everyone is confused, even the instructor. Moreover, the pupils are not clustered together in the conventional sense. The study of high-level mathematics is gaining popularity softer and more forgiving.

Therefore, it is essential that this article provide a smart cloud platform to enhance the connection between students and teachers, as well as students' study appetite and enthusiasm, in order to forestall the aforementioned problems.

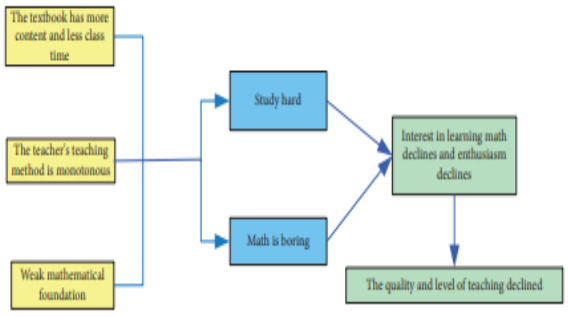

Figure 3: *e impact of the existing instructing environment.

Figure 3 shows a phenomena that has to occur in order to improve teaching quality and raise the bar for educators. Observing the domino effect of mathematical education produced by the complexity of textbooks, the sameness of arithmetic skills of students due to ineffective teaching strategies and low teacher confidence building blocks for pupils, as seen in Figure 3. cloud-based teaching and learning management system be used in many ways. In flipped classrooms, both students and teachers have the opportunity to interact face to face, and In class, pupils have the freedom to air their grievances.

Resources needed by users are selected and integrated internally by DT and cloud service platforms. There are, as was just indicated, three distinct run DT processes on data. An Intelligent Cloud Platform Built On DT, we must provide the appropriate procedure for choosing. *e The following is the guiding concept of the internal selection procedure installation:

$$f_{(\text{choice})} = \frac{1}{1 + x^{-e_i}}, \quad (i > 0). \qquad (7)$$

In (7), x represents the desired resource, e represents the size of the database's data distributions, and I represents the size of the information distribution blocks that must be accessed. information *is data distribution obtained from the database To put it simply, label is a smart label, and block will execute it. When this happens, user need any educational materials, DT will choose the information data storage block *en, it uses the method for choosing systems on the basis of their merits

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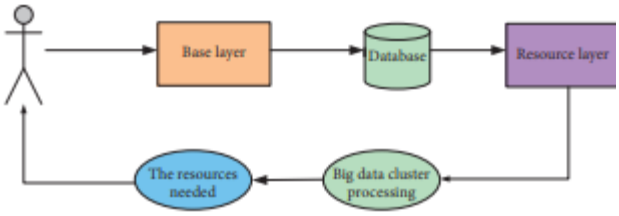

Figure 5: Flow chart of obtaining learning resources

$$f_{(\text{demand})} = \frac{1}{1+x^{-e_i}} * \prod_i Y * \tau. \quad (8)$$

Cluster processing in DT uses the above formula, where Y is the label of the information block where the resource is queried and is a matrix that maintains the balance of information.

$$\tau = \begin{Bmatrix} x & e_i \\ Y & k \end{Bmatrix}. \quad (9)$$

Thus, the smart cloud platform will choose the appropriate educational materials for its users. Further, the smart cloud platform necessitates a comprehensive storage server in the background to store students' learning data and learning materials, and necessitates a network for sharing information among many server-based amass instructional materials from every corner of the globe until you have a complete There are several concepts among cloud storage servers [19]. for pooling resources.*e pooling each sub memory to There is a change in overall memory. Our working hypothesis is that a sub memory Multiple-M Databases of Information If the whole supply has to be mobilize data stored in this section of RAM requires a first send a command to the sub storage server, and the sub storage server Only after extensive internal analysis and rapid operation will the service officially launch. in accordance with the prescribed guiding principle:Thus, the smart cloud platform will choose the appropriate educational materials for its users. Further, the smart cloud platform necessitates a comprehensive storage server in the background to store students' learning data and learning materials, and necessitates a network for sharing information among many server-based amass instructional materials from every corner of the globe until you have a complete There are several concepts among cloud storage servers [19]. for pooling resources.*e pooling each sub memory to There is a change in overall memory. Our working hypothesis is that a sub memory Multiple-M Databases of Information If the whole supply has to be mobilize data stored in this section of RAM requires a first send a command to the storage server, and the storage server Only after extensive internal analysis and rapid operation will the service officially launch. in accordance with the prescribed guiding principle:

$$w = \sum_s^t M_i\left(f_{(\text{demand})}\right) * \psi. \quad (10)$$

These are t (network speed), s (time of command transmission), I (weight produced during transmission), and (matrix). produced as a result of observer data analysis

$$\psi = \{M \quad i \quad g\}. \quad (11)$$

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$$E_1 = \sum_s^t g * i_1 * \frac{1}{2} \coprod M,$$

$$E_2 = E_1 + \sum_s^t g * i_2 * \frac{1}{3} \prod_i M, \quad (12)$$

$$E_3 = \frac{E_1}{E_2} * \sum_s^t M * i_3 * \prod_i^t M.$$

For example, the observer's threshold is denoted by g, and data flow is denoted by E. When used here, however, it must

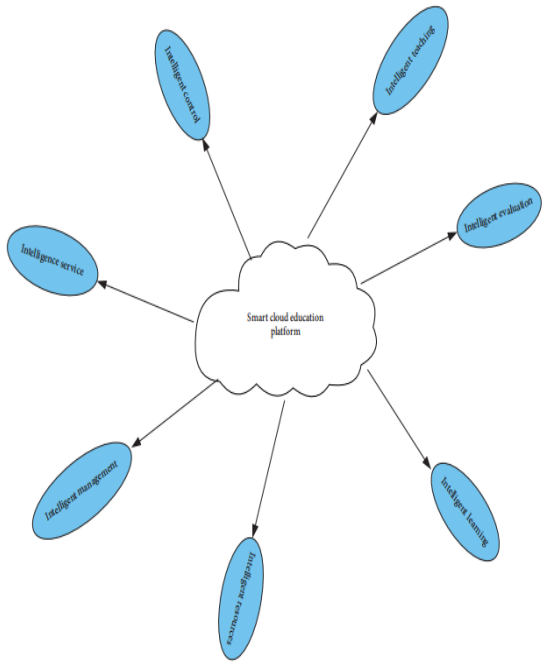

Figure 6: Functions of smart cloud platform.

compute the whole server's required data input flow using the following calculation principle:

$$E = (E_1 + E_2 + E_3) * \frac{\prod M}{4} * \varpi,$$

$$\varpi = \begin{Bmatrix} M & t \\ s & g \end{Bmatrix}. \quad (13)$$

As a result, the smart cloud platform helps both students and teachers by catering to their individual preferences and enabling them to pool their available resources.

Mathematics Instructing Experiment and Analysis Based on DT Smart Cloud Platform

Attitudes Towards Smart Cloud-Based Learning at Higher Education Institutions: A Survey of Students college. Three months of lessons on the cloud of wisdom platform, student opinions on the platform's An intelligent cloud-based platform for pedagogical use in the field of mathematics conducted, and the findings are shown in Table 1.

Table 1: Bottom line results.

Attitude	Freshman	Sophomore	Junior	Total number
Support	2056	2790	2967	7813
Neutral	345	456	234	1035
Against	50	27	18	95
Total number	2451	3273	3219	8943

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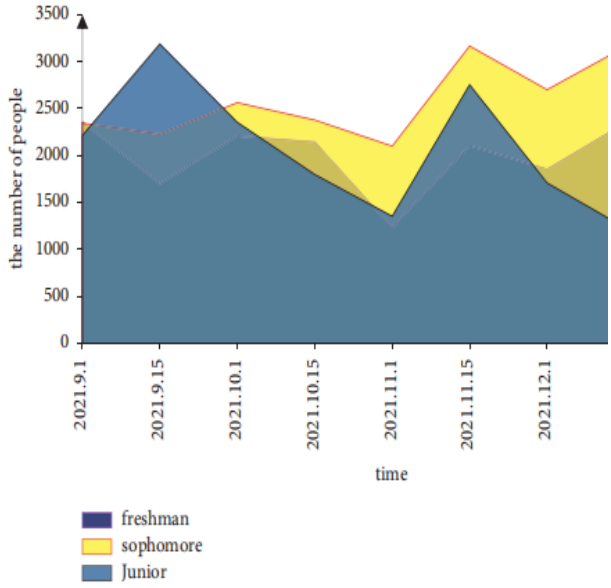

Figure 7: Usage of smart cloud platform.

There are about 9,000 first-, second-, and third-year students at the institution, and 57 of them have not declared their preference. The vast majority of first-year students are opposed to this. The vast majority of several of them claimed that training on the intelligent cloud system consume a lot of their free time outside of school. The majority of the juniors and seniors who disagreed cited a lack of sufficient time. Some of us use the time between classes to cram in some insightful Platform on the cloud. The vast majority of undecided students agreed that acceptance and extracurricular study are prerequisites for continuing their education in school. If it's not needed, it doesn't matter on the platform; the vast majority those learners who subscribe to the cloud platform's sage instruction can facilitate the execution of pre- and post-class activities work beyond class time to review material. Additionally, they may talk to their teachers and peers through the site where high school students can interact and boost their mathematical result, they are eager to study on their own time in order to improve their performance. A very intelligent cloud-based infrastructure. Moreover, the implementation of a smart cloud Figure 7 depicts the development of this platform over the course of the three months. Number of sophomores may be observed in Figure 7. The smart cloud platform is being used by students in the latter more often, whereas third-year students increasingly less so as compared to earlier times. As it turns out, the underclassman students should arrive on time. There has been a decrease because to a lack of. amount of ways in which intelligent cloud systems may be put to use.

It is clear from Figure 8 that the overall teaching level in Class 1 is higher than in Class 2. The students' enthusiasm for studying advanced mathematics appears to be justified. The percentage of pupils enrolling in elementary school in their first year has risen to a record high of 90%. The percentage of those who make it into the second class is low, at only 70%, and the standard of worrying about one's teachers is also a cause for concern. In addition, all of the students in the first class are actively engaged in the learning process. classroom participation, but given the current climate, Class two is the polar opposite of class one. Normal college students only was present. The educational impact may be defined as really terrible. Not only that, but 80 percent of the A+ students are enrolled in the first class, with students making about 40% of the total student body. At the second session, it's clear that the material presented there is different from what was covered in the first. mode plus the knowledge cloud contains more

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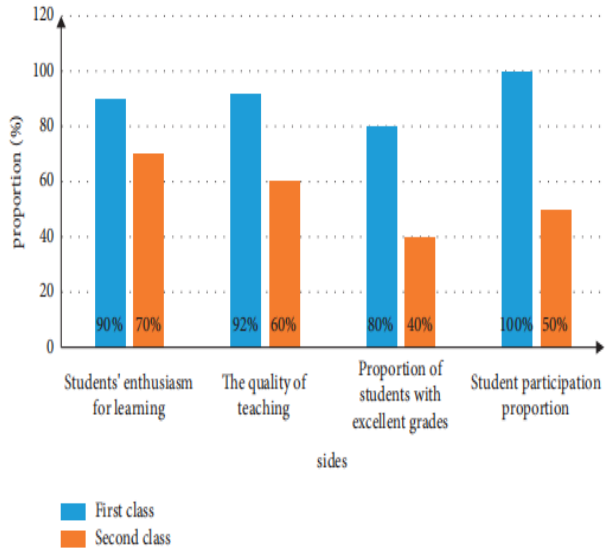

Figure 8: Comparison of all aspects of the two classes.

Table 2: Learning status of smart cloud platform

Students	The learning time/h	Online test results	Online assessment	Offline test scores	Total gr
1	112.56	89	96	84	87.9
2	156.03	79	88	80	81.3
3	234.8	79	89	89	86
4	302.2	67	77	78	74.5
5	344.4	78	80	82	80.4
6	245.7	89	90	79	84.2
7	367.01	87	78	80	81.7
8	234	89	90	76	82.7
9	235.6	79	89	89	86
10	245.3	86	79	70	76.6

Note. Total score=online test * 30%+online evaluation * 20%+offline test * 50%.

benefits, most notably for the instructing instructor, who enjoys elevate perceptions, and the contrast between the two is undeniable the two groups' learning progress, and this educator's own high recognition and an approach to education that integrates knowledge and cloud.

Experiment 8i Synopsis. College surveys reveal that the vast majority of students are in favour of using the smart cloud platform to teach mathematics. Moreover, the vast majority of pupils will use the intelligent cloud system. want math education to take a step forward. This is a vie Regarding instructive impact, the smart cloud's instructional impact platform is readily apparent, and it offers additional benefits over the way of teaching that has been around for a long time. Employing a Cloud-Based, Intelligent System can really get the kids fired up about participating in class kids' eagerness to learn and the energy they bring to the classroom passion and interest in advanced mathematics among pupils as a means of education and a means of enhancing interaction between mathematics, and help students and instructors with their homework must have enough time to get effective teaching outcomes. For the first time, students may see their personal training in the intelligent cloud, and can be able to see how far they've come, which will likely boost their motivation.

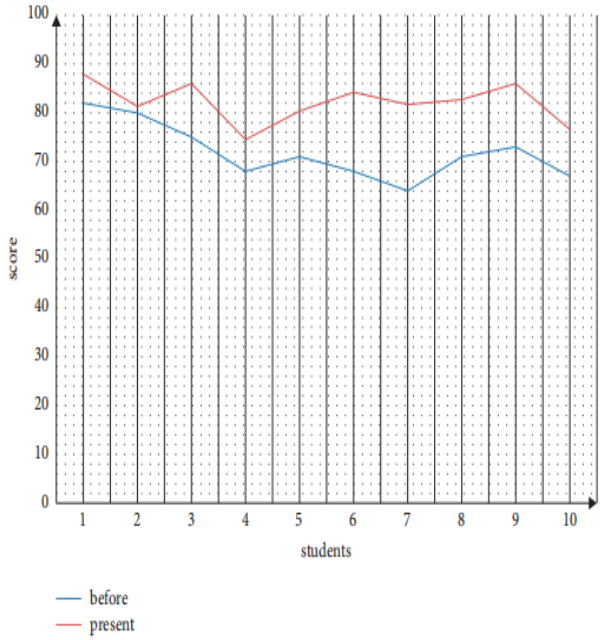

Figure 9: Comparison of the results of ten students and the final results of the previous semester.

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improved significantly farther in maths. In addition, a mathematics assessment form has been produced for use in assessing Typing's mathematical education, making for a more thorough and informed evaluation of student performance. better capture the pupils' actual mathematical ability, which is tremendous aid in raising test results in maths student body.

Discussion

The DT-based smart cloud platform is introduced initially in this article. When it comes to cloud storage, e smart cloud platform has you covered. When DT was implemented, the intelligent Upgrading a cloud platform is possible. In addition to the cloud of knowledge Since the platform is so pervasive and influential in our daily lives, among them, smart cities and public transit. which are controlled by the platform in the wisdom cloud. For the foreseeable future, with persistent enhancements to smart cloud systems, its usefulness will spread to spread out in a larger and wider arc. As an example, this article delves into the implementation of DT-based smart cloud systems in the education-related field. Enhancing the Math Classroom at Vocational Universities This paper builds a space for teaching arithmetic. with the help of the DT Intelligent Cloud Platform, we were able to organisational model for education that integrates cognitive Educating with a Focus on Trauma *e Mathematical Content Organization in school classrooms nowadays.

Conclusions

This essay examines the state of mathematics education at universities and concludes that there are serious flaws in the current system environment. This study creates a DT-based intelligent cloud platform for mathematics education with the goal of influencing institutional shifts in classroom practise at higher learning institutions. Use this site to access a wealth of math-related instructional materials. shared, and students' math activities outside of the classroom may be saved and replayed for future use, and improve the standard and quality of teaching by tailoring lessons to each student's individual needs all the way through. Additionally, this system utilises an online quiz using artificial intelligence for assessing student progress and reaffirm pupils' prior learning, followed by analyse the quality of the learning environment in an astute manner. As the final grade will be reflected in the evaluation that there will always be a spark of interest in studying within the student body. It is possible for teachers to utilise the intelligent cloud platform to alter the teaching discipline and inspiring learning and a hunger for knowledge in the lecture hall.

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